



IPSR-INTERNATIONAL 2019 FALL MEETING

October 10-11, 2019

Cambridge, Massachusetts • Marriott Hotel

BREAKING THROUGH THE COMMERCIAL BARRIERS

PREVIEW OF THE 2020 INTERNATIONAL INTEGRATED PHOTONIC SYSTEMS ROADMAP

The 2019 Fall Meeting will assess the commercial ramp of electronic-photonic systems and define the application-specific roadblocks and their potential solutions. *Each Session will feature four levels of perspective: i) CTO Vision, ii) Engineering Implementation, iii) Research Solutions and iv) Panel consensus on market demands, gaps, technological barriers, and timeframes for key engineering milestones.*

Thursday, October 10, 2019

Registration at 8:30a

Session I System Requirements: Design, Process and Architecture Integration

Cost of Ownership, Disaggregation of Architecture and Vertical Integration of Product Development

Keynote: Uri Cummings, Chief Technologist, Intel Connectivity and Data Center Group

vision for the pervasive deployment of electronic-photonic integrated systems in communication, computing, imaging and learning

Engineering and Research Keynotes

Panel: disruptions in the path of repartitioned electronic-photonic information processing

Session II Application Specific Platforms: Performance

Niche vs. Commodity: application performance scaling and platform diversity

Keynote: Martin Zirngibl, CTO, Finisar

vision for wafer materials platform selection for datacom and sensing application

Engineering and Research Keynotes

Panel: will scaling cost and manufacturing volume drive all solutions to silicon?

Session III The Pb/s Bandwidth Density Frontier

High capacity I/O at constant cost, energy and thermal load

Keynote: TBA, Broadcom

vision for electronic-photonic integrated systems: data links, switches, and protocols

Engineering Keynote: TBA, NTT

Panel: variables, interactions and system optimization for scaling to Eb/s I/O

Session IV Application TWG Executive Summary Reports

- **Datacom and Telecom**
- **Industrial Internet of Things**
- **RF**
- **Automotive**
- **Aerospace**
- **Biomedical**
- **Sensors**

Networking Reception

Become a Member of the MIT Microphotonics Center

The MIT Microphotonics Center is a Consortium of scientists, engineers, and strategists from academia and industry, whose core mission is the creation of new materials, structures and architectures to enable the evolution of photonics from single, discrete devices to integrated photonic systems, where such systems facilitate industry and consumer demands within economic and technical boundaries.

Friday, October 11, 2019

Registration at 8:30a

Lessons Learned

Session V Manufacturing: Cost

Tools, time, utilization and yield

Vision Keynote: TBA, Cisco

vision for cost parity of integrated photonic with incumbent technologies

Research Keynote: TBA, MIT

Panel: Incrementing product performance at commercially acceptable intervals

Session VI Focus on PIC Foundry Capabilities

Key players and roadmaps: smaller PIC die, lasers, amplifiers, failure modes

Vision Keynote: TBA

Summary of Foundry TATs and PDKs, design software integration and roadmaps

Engineering Keynotes: Global Foundries, AIM-MPW and more

Panel: system parameters for supporting R&D and design while ramping manufacturing volume

Session V Focus on E-PIC Packaging

Building the necessary electronic-photonic system synergy

Vision Keynote: Terry Smith, 3M retired; Tom Marrapode, Molex; Tom Brown, U Rochester; Peter O'Brien, Tyndall; Grace O'Malley, INEMI

Vision for On-Board Optical Interconnection: system requirements, industry survey results, consortium demo specifications

Engineering and Research Keynotes: AIM-TAP, MIT

Panel: Low cost and seamless tool and architecture compatibility with System-in-Package

Session VI Technology TWG Executive Summary Reports

- **Silicon**
- **Indium Phosphide**
- **Silicon Nitride**
- **Polymers**
- **Electronic-Photonic Packaging**
- **Interconnects**
- **Electronic-Photonic Assembly**
- **Electronic-Photonic Test**
- **Electronic-Photonic Design Automation**

Session V Introduction of the next Grand Challenge Study

Panel: Electronic-Photonic Technology and Supply Chain 2035

Determine the required evolution of technologies and supply chains to enable cost-effective, high-volume implementation of electronic-photonic integrated circuits (E-PICs) in communication, sensing and information processing applications.

Adjourn at 4:30p

Become a Member of the MIT Microphotonics Center

The MIT Microphotonics Center is a Consortium of scientists, engineers, and strategists from academia and industry, whose core mission is the creation of new materials, structures and architectures to enable the evolution of photonics from single, discrete devices to integrated photonic systems, where such systems facilitate industry and consumer demands within economic and technical boundaries.